EDC DAAC Terra Readiness

MODIS Science Team

November 17, 1999

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EDC DAAC

EDC DAAC Science Operations Status Agenda

- DAAC Mission Overview
- DAAC Readiness/Operability
- DAAC Resource Schedule
- DAAC Unique Extensions
- Status Summary
- Issues, Concerns and Work-off Plans
- MOSS-3 Data Distribution Summary
- User Support Model
- Sample Data Product Strategy

TERRA Day in the Life Requirements

- **Mission Critical**
  - Ingest and Archive
    - L7 L0R (275 full scenes per day; 140 GB/day) via LAN.
    - ASTER L1A data (777 scenes/day) and L1B data (310 scenes/day) via D3 (total 140GB/day) from Japan.
    - ASTER expedited L0 datasets (4 scenes/day average, 13 max; 2GB/day) via WAN from GDAAC.
    - ASTER ancillary datasets (daily Observation Scheduling File, <1GB/day) via WAN from GSFC.
  - Distribution
    - L7 L0R products (110 scenes/day, 55 GB/day).
    - Cloud Cover Assessment metadata to MOC and MMO (<1MB/day)

Overview Day in the Life Requirements

- **Mission Essential**
  - Ingest and Archive
    - MODIS L2 and higher land products (47 product types, 78 GB/day) via WAN from MODAPs.
  - Production
    - SSI&T (7 ASTER PGEs, ASTER & MODIS ESDTs)
    - Generate ASTER DEM products (1/day, 365/year)
    - Generate ASTER expedited L1 products (4 GB/day)
    - Generate ASTER L2 products (37 GB/day)
      - 30/day (3GB) on-demand scenes - manual workaround (pre-5B)
      - 360/day (31GB) on-demand scenes - automated (5B)
      - 310/day (34GB) decorrelation stretch (DST)
  - Distribution
    - Distribute ASTER L1A, L1B, L2 products (182 GB/day)
    - Distribute MODIS L2 and higher products (78 GB/day)

DAAC Readiness - Mission Critical Scenarios

EDAAC Mission Critical Scenarios	11/10/ 1999	2/2/ 2000	4/2/ 2000	11/10/ 1999	2/2/ 2000	4/2/ 2000	NCRs/Comment
	Functionality			**Performance**			
OPS Ingest to Archive							
Routine L7	100%	100%	100%	100%	100%	100%	
Accept ASTER Expedited Data Sets (EDS) from GSFC	n/t	100%	100%	n/t	100%	100%	Fix In 5A. Can do manual inserts.
Full ASTER GDS D3 Tape	100%	100%	100%	80%	90%	100%	Stability is poor. NCR17707
Return D3 Tape to ASTER GDS	100%	100%	100%	100%	100%	100%	
Ingest ancillary datasets from GSFC	10%	80%	100%	n/t	100%	100%	OSF ICD in work. Format problems w/ NOAA data, fix in 5A.
OPS Distribution							
Routine L7 with WRS Subsetting	100%	100%	100%	100%	100%	100%	
CCA metadata to L7 MOC and MMO.	100%	100%	100%	100%	100%	100%	
System Support							
Resource Management for 3 Modes	100%	100%	100%	65%	80%	100%	New h/w, s/w config eval, more sybase con. Cannot run all 3 modes at their full rates without impacting ops.
		All Scenarios Demonstrated in Ops Mode at DAAC						
		Minor Problems - NCRs & Percent Scenarios impacted						
		Major Problems - NCRs & Percent Scenarios impacted						
	n/t	Not tested yet.						

DAAC Readiness - Mission Essential Scenarios

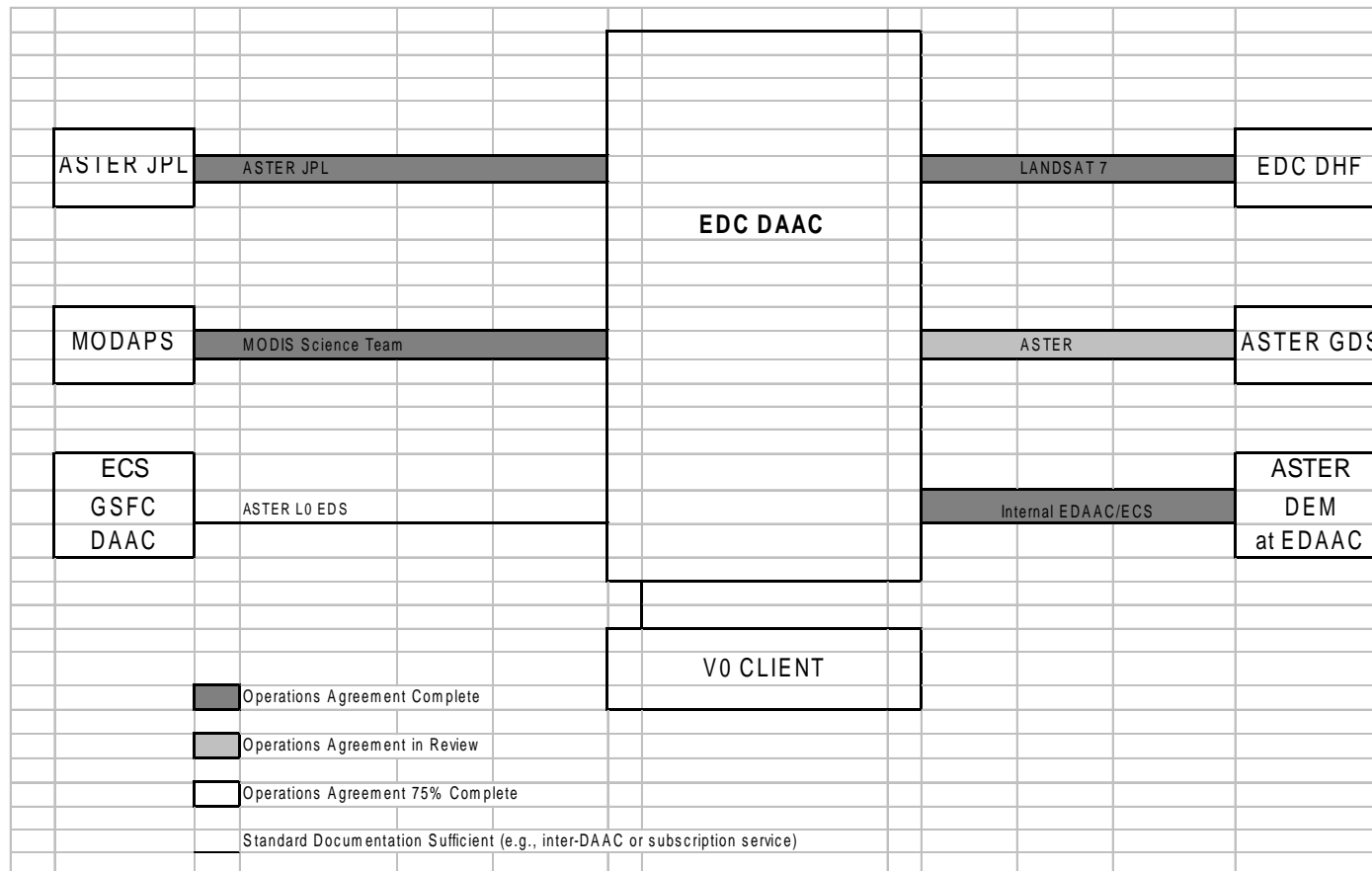| EDAAC Mission Essential Scenarios	11/10/ 1999	2/2/ 2000	4/2/ 2000	11/10/ 1999	2/2/ 2000	4/2/ 2000	NCRs/Comment
	Functionality			**Performance**			
Science Software Integration and Test							
Inspect ASTER PGE	100%	100%	100%	100%	100%	100%	
Command Line Test ASTER PGE	100%	100%	100%	100%	100%	100%	
Trouble Ticket Process and SCF Forwarding	100%	100%	100%	100%	100%	100%	
Integrate ASTER PGE	100%	100%	100%	100%	100%	100%	
Plan and Run ASTER Routine Processing	100%	100%	100%	100%	100%	100%	
Plan & Run ASTER On-demand Processing	100%	100%	100%	100%	100%	100%	workaround until 5B, 30/day until then.
Subscription Service Workaround	100%	100%	100%	100%	100%	100%	0 non-IT user subscriptions supported
MODIS SIPS Ingest Check	100%	100%	100%	100%	100%	100%	
ASTER Expedited Data Service (EDS) Check	50%	100%	100%	n/t	100%	100%	Fix in 5A.
ASTER DEM Production	50%	100%	100%	50%	100%	100%	Fix in 5A, also need s/w changes.
1km/100m DEM Production and Ingest	100%	100%	100%	100%	100%	100%	
Generate VALIDs from ESDT	100%	100%	100%	100%	100%	100%	
Access Check on Test Client	100%	100%	100%	100%	100%	100%	
Product Metadata Check	100%	100%	100%	100%	100%	100%	
Request Browse	100%	100%	100%	100%	100%	100%	DST Browse not working yet - fix in 5A.
Order Product (FTP and Media)	100%	100%	100%	100%	100%	100%	Shipping label upgrade still in work.
Update QA Flag Test	50%	100%	100%	60%	100%	100%	QAMUT not working - fix in 5A.
Version Product Test	100%	100%	100%	100%	100%	100%	
Promote PGE to OPS Mode	90%	100%	100%	100%	100%	100%	Need to formalize EDAAC CM process
ASTER DAR - Generate, Submit and Responses for a DAR	25%	40%	75%	10%	40%	100%	5sev2, 61NCRs total. NCR21007, etc. M
Accept ASTER Expedited Data from GSFC	40%	60%	80%	0%	0%	100%	Fix in 5A, PGEs not working.
Generate ASTER Expedited Data Set	40%	60%	80%	0%	0%	100%	Fix in 5A, PGEs not working.
Limited Dist , ASTER Expedited Data Set	100%	100%	100%	100%	100%	100%	
Generate ASTER DEM	95%	95%	100%	100%	100%	100%	5A patch I/F in work, will update in ICO.
ASTER QA Support	75%	100%	100%	50%	100%	100%	QA MUT fixed in 5A; increase due to simplified QA process.
MODIS QA Support	50%	100%	100%	50%	100%	100%	QA MUT fixed in 5A.
		All Scenarios Demonstrated in Ops Mode at DAAC					
		Minor Problems - NCRs & Percent Scenarios impacted					
		Major Problems - NCRs & Percent Scenarios impacted					
	n/t	Not tested.					

DAAC Readiness - Mission Essential Scenarios

EDAAC Mission Essential Scenarios	11/10/1999	2/2/2000	4/2/1999	11/10/1999	2/2/2000	4/2/1999	NCRs/Comment
	Functionality			**Performance**			
OPS Production							
Create Production Plan	100%	100%	100%	100%	100%	100%	
Create Alternate Production Plans	100%	100%	100%	100%	100%	100%	
Recover from ASTER Production Failure	100%	100%	100%	100%	100%	100%	
Routine ASTER Production	100%	100%	100%	100%	100%	100%	
On-Demand ASTER Production	100%	100%	100%	100%	100%	100%	Manual workaround in 5A.
OPS Distribution							
Routine L7 with WRS Subsetting	100%	100%	100%	85%	100%	100%	
ASTER Distribution	95%	100%	100%	85%	100%	100%	Shipping label process in work.
MODIS Distribution	95%	100%	100%	85%	100%	100%	Shipping label process in work.
Multiple Scene Orders	70%	100%	100%	85%	100%	100%	Cannot span 8mm tapes.
Mixed ASTER & MODIS (no-charge)	100%	100%	100%	85%	100%	100%	
Mixed ASTER, MODIS & L7 (n/c mixed with DORRAN)	100%	100%	100%	85%	100%	100%	
Mixed Media (FTP & 8mm)	100%	100%	100%	85%	100%	100%	
OPS Ingest to Archive							
Return D3 Tape to ASTER GDS	100%	100%	100%	100%	100%	100%	
ASTER DEM	60%	100%	100%	60%	100%	100%	Waiting for 5A.
MODIS SIPS Checkout FTP	100%	100%	100%	100%	100%	100%	
Full MODIS SIPS	100%	100%	100%	20%	80%	100%	Networks OK, need more good test data and OREs/pseudo-ops.
Accept ASTER Expedited Data Set (EDS) from GSFC	50%	100%	100%	n/t	100%	100%	need OSF file and 5A.
		All Scenarios Demonstrated in Ops Mode at DAAC					
		Minor Problems - NCRs & Percent Scenarios impacted					
		Major Problems - NCRs & Percent Scenarios impacted					
	n/t	Not tested yet.					

DAAC System Resource Schedules

ID	Name	Start	4, 1999		Qtr 1, 2000			Qtr 2, 2000			Qtr 3, 20	
			Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	Landsat 7 Operations	10/1/99										
2	Terra Pseudo-Operations / MOSS Tests	10/1/99										
3	Drop 5A into Ops Mode	11/16/99										
4	EGS-10 Dry Run	11/29/99										
5	Terra Launch	12/2/99										
6	EGS-10 Formal	12/13/99										
7	First ASTER Data Arrives	12/25/99										
8	Terra Instrument Checkout Operations	12/25/99										
9	First ASTER L1A/L1B Tapes Arrive	1/24/00										
10	First ASTER & MODIS Data Distributed To ST	2/2/00										
11	First ASTER Expedited Data Distributed to ST	2/17/00										
12	First ASTER Data Distributed to the Public	3/30/00										
13	First MODIS Data Distributed to the Public	4/2/00										
14	Full Terra Operations (STs and the public)	3/30/00										
15	Drop 5B into Ops Mode	8/1/00										
16	(ST = Science Teams)	10/27/99										

EDC DAAC Operations Data Status

| ASTER JPL | ASTER JPL | | LANDSAT 7 | EDC DHF |

EDC DAAC

| MODAPS | MODIS Science Team | | ASTER | ASTER GDS |

| ECS GSFC DAAC | ASTER L0 EDS | | Internal EDAAC/ECS | ASTER DEM at EDAAC |

V0 CLIENT

Operations Agreement Complete

Operations Agreement in Review

Operations Agreement 75% Complete

Standard Documentation Sufficient (e.g., inter-DAAC or subscription service)

DAAC Unique Extensions (if any)

- ## At Launch Capabilities
  - ASTER DEM processing (ASTER DEM product itself is a standard product).
  - User browse access tool - may be replaced by 5A.
  - L7 Billing and Accounting workaround is operational, does not affect Terra operations.
  - Shipping label function being investigated.

- ## Plans for Post-Launch Support
  - No others planned for immediate post-launch support.
  - At Science Advisory Panel request, we will investigate feasibility of adding:
    - CD-ROM and DLT production capability, MODIS subsetting.

DAAC Science Operations Status Summary

	11/10/99	2/2/00	4/2/00
System Readiness/Operability	🟨	🟨	🟨
Staffing and Training	🟨	🟩	🟩
Science Software Integration and Test	🟨	🟩	🟩
Documentation	🟨	🟩	🟩
Logistics	🟩	🟩	🟩

🟩 Ready for Science Operations
🟨 Ready with workarounds
🟥 Not Ready

Major Issues and Work Plan

Issue/Concern	Work Plan	Workoff Date	Need Date
Operational environment constrains development, integration, and test activities.	Allocate resources and schedule windows to tasks by priority.	Ongoing.	
QA MUT not tested yet with 5A at EDAAC, required for QA support.	Test with 5A when possible.	15-Nov-99	2-Feb-00
ASTER on-demand workaround until Drop 5B limits number of products made (30/day vs. required 310/day).	Production limited by manual work required. Possibly reallocate staff if demand warrants.	Installation of 5B into Ops mode.	2-Apr-00
ASTER expedited data workaround very manual & skill intensive until 5B. Response time to VIP requests constrained by limited number of trained staff available.	Schedule staff with this constraint in mind. Work with MOC to get advance warning of expedited data.	Installation of 5B into Ops mode.	TBD by VIP demand, earliest is 29-Dec-99
ASTER L1A/L1B software delivery date is unknown. Expedited data depends on it.	ESDIS and ECS are continuing to work with software provider, the ASTER GDS.	TBD	L+75, 17-Feb-00
DAR Tool schedule unlikely to meet requirements.	DAAC working NCRs and testing, ESDIS working issue as well.	TBD	L+60, 2-Feb-00
Users (Instrument Teams for ingest, customers for distribution) likely to exceed requirements, currently no system tools exist to manage multiple instruments and throttle system (system is FIFO).	For ingest, use management chain of command to limit amount of data sent. For user demand, watch demand and schedule resources to generate workarounds.	Estimated 1-Jul-00	Projected date ranges from 2-Apr-00 to 1-Oct-00

MOSS-3 Data Distribution Summary

EDC DAAC MOSS-3 Distribution Summary			
	Orders Placed (FTP + 8mm)	**Orders Failed**	**Orders Shipped**	**Orders Suspended with Errors**
MODIS	111	10	86	15
ASTER	179	9	103	67
Landsat 7 Products	144	1	143	0
Landsat 7 Browse	1623	4	1619	0

	Orders Placed (FTP)	**Orders Failed**	**Orders Shipped**	**Orders Suspended with Errors**
MODIS	69	6	53	10
ASTER	140	9	75	56
Landsat 7 Products	134	1	133	0
Landsat 7 Browse	1623	4	1619	0

	Orders Placed (8mm)	**Orders Failed**	**Orders Shipped**	**Orders Suspended with Errors**
MODIS	42	4	33	5
ASTER	39	0	28	11
Landsat 7 Products	10	0	10	0
Landsat 7 Browse	0	0	0	0

User Support Model

```
┌─────────────────────────────┐
│   MODIS Land Data User      │
└─────────────────────────────┘
         ↕          →          ┌──────────────┐
                               │   FAQ DB     │
                               └──────────────┘
┌─────────────────────────────┐
│   DAAC User Services        │
│          CSR                │
└─────────────────────────────┘
         ↕
┌─────────────────────────────┐
│   DAAC User Services        │
│          ESDS               │
└─────────────────────────────┘
         ↕
┌──────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ECS Operations│↔ │ Science Support │↔ │ Science Support │
└──────────────┘  │    ECS MSDS     │  │     EDC SAB     │
                  └─────────────────┘  └─────────────────┘
                          ↕
                  ┌─────────────────┐
                  │  MODIS Science  │
                  │      MSC        │
                  └─────────────────┘
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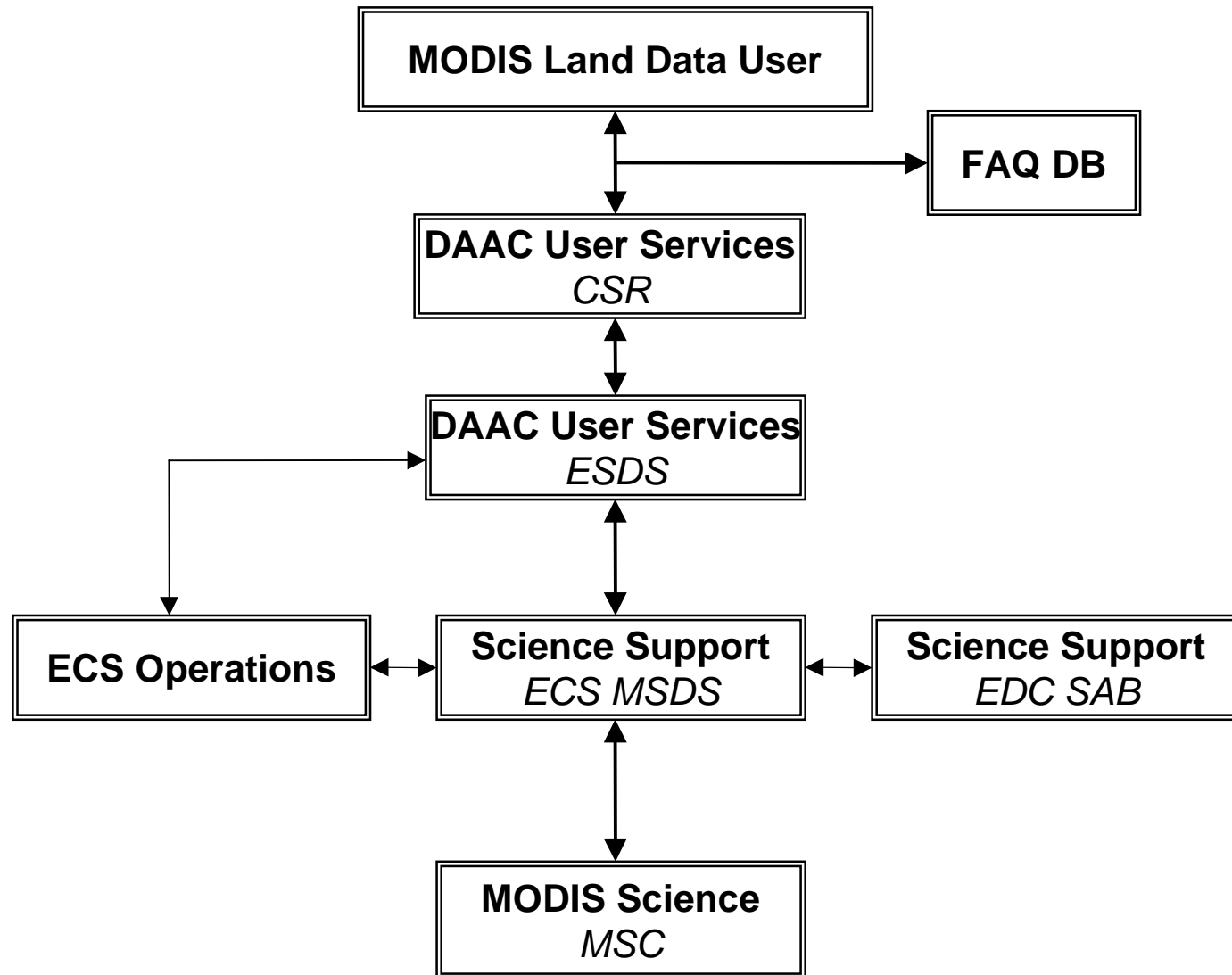
User Support Model

EDC DAAC POCs

CSR
Customer Service Representative
Mikes and Marks

ESDS
Earth Science Data Specialist
Carolyn Gacke

SAB
Science Applications Branch
Bradley Reed

MSDS
MODIS Science Data Specialist
Calli Jenkerson

MSC
MODIS Science Coordinator
Robert Wolfe

QUESTION CLASSIFICATION

General Example	Support Path
DISTRIBUTION	
Order Tracking	CSR
Subscriptions	CSR…ESDS
MEDIA PROBLEMS	
FTP Transfers	CSR…ESDS…OPS
8 mm Tape	
TECHNICAL QUESTIONS	
Software, format	CSR…ESDS…MSDS…SAB
APPLICATIONS/INTERPRETATION	
Data Use	CSR…ESDS…MSDS…SAB…MSDS…MSC
DATA ANOMALIES	
Content	CSR…ESDS…MSDS…SAB…MSDS…MSC
Instrument	CSR…ESDS…MSDS…OPS…MSDS…MSC

Sample Data Product Target Audiences

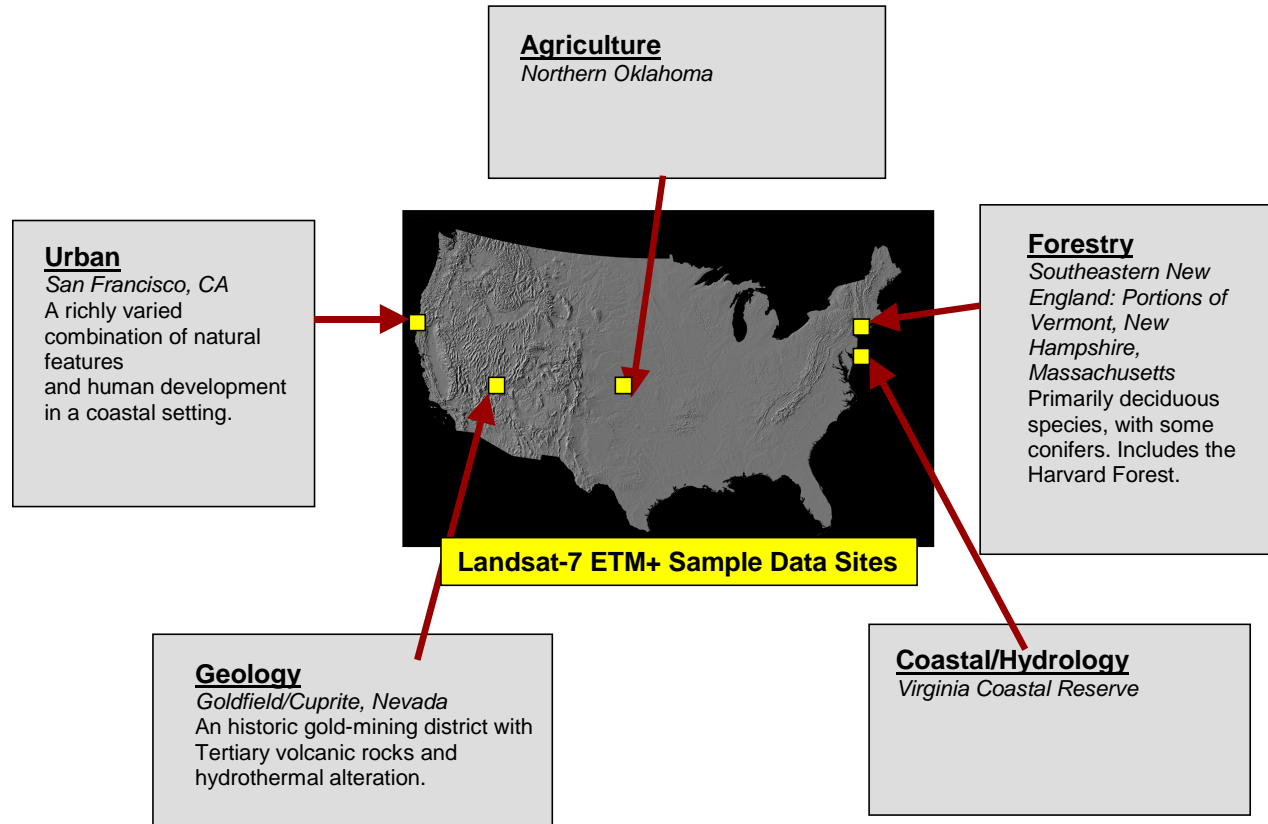| Target audience	Pre-launch	Early Release	Sample Data (routine production)
Science	X	X	X
Value-added retail	X	X	X
Casual user			X
Public Relations		X	X

Sample Data Products

- Reasons for producing sample products
  - outreach/public relations
  - mitigate impact on 'real' orders - reduce frivolous data orders
  - ease of use/acquisition for casual customers - no EDG

- Cover 5 sites over different types of environments corresponding to well studied areas (and Landsat 7 sample scenes)
  - agricultural (ARM/CART, Kansas/Oklahoma)
  - geological (Goldfield/Cuprite, Nevada)
  - coastal (Virginia Coastal Preserve)
  - urban (San Francisco)
  - forest (Harvard Forest)

Sample Data Products

- Data Delivery
  - 8 mm tape, ftp
  - HDF-EOS format (identical format as data acquired through 'normal' channels, i.e. EDG)
  - Areal coverage granule corresponding to L7 scene
  - includes tutorial for reading and interpreting data
- Timeline
  - After routine production begins
  - As products become public (with permission of PI and MODLAND), they become part of sample data package

Landsat-7 ETM+ Sample Data

Agriculture
Northern Oklahoma

Urban
San Francisco, CA
A richly varied
combination of natural
features
and human development
in a coastal setting.

Forestry
*Southeastern New
England: Portions of
Vermont, New
Hampshire,
Massachusetts*
Primarily deciduous
species, with some
conifers. Includes the
Harvard Forest.

Landsat-7 ETM+ Sample Data Sites

Geology
Goldfield/Cuprite, Nevada
An historic gold-mining district with
Tertiary volcanic rocks and
hydrothermal alteration.

Coastal/Hydrology
Virginia Coastal Reserve

LANDSAT-7 SAMPLE DATA PRODUCT AVAILABILITY

Processing Level	Format			Media	
	GeoTIFF	Fast	HDF	CD	8mm Tape
L0			X		X
L1G	X	X	X	X	X
L1R			X	X	X